

Dialogue with Risk Managers on Use of Probabilistic Analyses

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What is the impetus for the dialogue?

- Experts in & outside EPA encourage greater use of PRA
- Better characterization of uncertainty in risk and “safety” estimates needed
- Limited experience in EPA using PRA to support decisions

What are the goals for this dialogue?

- Bring together risk assessors and risk managers/decision makers
- Identify critical RM issues and needs relevant to PRA
- Harmonize scientific PRA technical efforts to decision-making needs
- Identify possible solutions or pathways to fuller implementation of PRA
- Educate analysts and managers on PRA uses for Risk Decision Making

Anticipated Outcomes:

What are the types of information we expect to find?

- What types of information and major issues are most important to EPA senior managers when they have to make a regulatory decision?
- Identify the situations where PRA plays an important role in Agency decision making.
- What kind of information do EPA senior managers/decision makers want to hear when they are briefed about PRA results.
- What kinds of information about variability or uncertainty do EPA managers want from a PRA in making a decision?
- What barriers are there to using PRA (e.g., legal) or what are specific issues or concerns to using it?

Anticipated Outcomes:

What are the technical and procedural barriers for considering PRA in decision making?

- What are the scientific barriers for relying upon PRA in regulatory decision making?
- What are known or perceived procedural or regulatory concerns that may limit the use of PRA in decision making?
- What are the challenges involved in communicating PRA methods and results to decision makers?
- What needs and/or opportunities for PRA training and tech transfer exist?
- Where are there current or future opportunities for tech transfer, between or within programs?

Example questions for Decision Makers

- What information about the uncertainties in the risk assessment is needed by risk managers and what tools (e.g. PRA) provide that information ?
- How will knowing the weaknesses or uncertainty in the underlying information affect the decision making?
- How can PRA be used to guide the decision makers when to obtain better scientific information?
- What challenges are involved in the communication of qualitative or quantitative uncertainties in methods or results?
- What are the most effective ways of communicating the results from a PRA to decision makers and stakeholders?

What are the steps in the dialogue?

- Plan the dialogue (Q’s and A’s)
- Conduct initial interviews and obtain office commitment to effort
- Identify critical decision making steps in risk decision making
- Select case examples relevant to program decision making
- Build on prior discussions and update
- Allow for program office and Regional discussions
- Bring all together to develop a cohesive and consensus approach

What do prior inquiries reveal that can inform the process?

Some prior surveys:

- OAQPS survey (Bloom and Byrnnne, 1993)
- Region 3: 1993 Focus group study of 11 senior managers and 30 lower level participants)
- Thompson and Bloom review (2000)
- 2005 Office of Economics study of off-road air pollution cost-benefit decision making
- Resources for the Future – interviewed 7 past EPA officials (2006)

Some prior findings:

- The manner in which information is presented can affect its interpretation.
 - Anchoring
 - Framing
- Some research shows that presenting uncertainty can cause people to discount the entire analysis (“ambiguity avoidance”).
- Experts have shown to be as susceptible to these problems as the general public.
- In general, graphing quantities with a common axis (bar graph) works better than as areas and symbols (Cleveland and McGill, 1986).
- Graphics tend to make audience more risk averse than numeric presentations (Stone et al. 1997).
- PDF draws attention to the tails of distribution (Siebenmorgan et al 2000)

How will the results of dialogue be implemented?

- Allow for program office and regional offices discussions and implementation
- Conduct workshop to inform and engage decision makers and practitioners and to bring together dialogue participants
- Brief Science Policy Council on findings
- Summarize and implement findings to advise Agency managers and practitioners
 - Workshop summary
 - Training and education
 - Case examples
 - Issue Papers
 - Additional guidance on PRA

The views expressed in this poster are those of the authors and do not necessarily reflect the official policy of the EPA

